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**REMARKS**

Entry of the above amendment is respectfully requested. No new matter is introduced by such amendments. Support for the amendments may be found throughout the specification as originally filed.

**Status of the Application.**

Claims 1-51 are pending in the application. Claims 2, 4, 5, 9, 10, 12, 15, 35 and 36 have been objected to because of various informalities. Claims 15 and 33 stand rejected under 35 USC §112, second paragraph. Claims 1-15 and 27-40 stand rejected under 35 USC §103(a). Claims 1, 3, 5-15, and 27-40 being amended with entry of this amendment. No new matter has been added with this amendment.

**Restriction Requirement**

Applicants hereby affirm the election with traverse of Group I, claims 1-15 and 27-40. Applicants traverse this restriction requirement and believe that a search and examination of the entire application can be made without serious burden to the Examiner, see MPEP sections 803 and 808.

By this amendment applicants have canceled without prejudice the non-elected claims. Applicants reserve the right to file the claims in a continuation, continuation-in-part, or divisional application, as may be deemed appropriate.

**Drawings**

In response to the Notice of Draftsperson's Patent Drawing Review dated April 14, 2000, attached to Paper No. 16 dated June 6, 2001, Applicants are submitting new formal drawings herewith.

**Claim Objections**

Claims 2, 4, 5, 9, 10, 12, 15, 35 and 36 have been objected to for various informalities. Claims 2 and 4 have been canceled by this amendment. Claims 5, 9, 10, 12, 15, 35 and 36 have been amended to correct the various informalities. Withdrawal of the objections is respectfully requested.

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**Rejection under 35 U.S.C. §112, second paragraph.**

Claims 15 and 33 stand rejected under 35 USC §112, second paragraph, as being indefinite. Specifically, the Examiner urges that the phrases "is essentially eliminated" in Claim 15 and "and/or" in claim 33 renders the claims indefinite. Applicants traverse the rejections and request withdrawal of the rejections.

Claim 15 has been amended to replace the phrase "is essentially eliminated" with the phrase "are inactivated and thus render the instant rejection moot. Support for the amendment may be found at, for example, page 15, line 6 et seq.

Claim 33 has been amended to place the claim in proper Markush language. Applicants believe that the claim is now in condition for allowance.

**Rejection under 35 U.S.C. §112, first paragraph.**

Claims 1-13, 15, 27-30 and 33-40 stand rejected under 35 USC §112, first paragraph, as failing to provide enablement for any modified pullulanase. Specifically, the Examiner asserts that the claim scope is not commensurate with the enablement provided by the disclosure. Applicants respectfully traverse.

On page 8, lines 8-12, Applicants state:

The deletion in the amino terminal amino acids of a pullulanase can be of varying length, but is at least three amino acids in length and the deletion can go no further than the beginning of the first conserved domain which in *B. deramificans* is the tyrosine at amino acid residue 310 as shown in Figure 1.

Thus, Applicants believe it is clear that the truncation of the pullulanase can be any length with the caveat that the deletion can be no longer than the length of the N-terminus before the first conserved region. Applicants respectfully request withdrawal of the rejection.

Claims 1-13, 15, 27-30 and 33-40 were further rejected under 35 USC §112, first paragraph, as directed to a genus of polypeptides that have not been disclosed in the specification. Applicants believe the present amendment to the claims obviates the instant rejection. Withdrawal is respectfully requested.

Claim 5 has been rejected by the Examiner as allegedly employing a novel bacterial strain. Applicants wish to draw the Examiner's attention to page 9, lines 25-28 where we have provided information regarding a specific public source for *B. deramificans*. Specifically, Applicants state: "*B. deramificans* (having the designation T89.117D in the LMG culture collection, University of Ghent, Laboratory of Microbiology-K.L. Ledeganckstraat 35, B-9000 Ghent, Belgium)." The LMG culture collection has since March 1, 1992, as part of the BCCM™

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consortium, been recognized as an "International Depositary Authority" (IDA) and can accept almost all biological materials as patent deposits under the Budapest Treaty. Furthermore, the deposit was made by a third party, not the Applicants. Applicants were simply accessing and referencing the publicly available source. Thus, Applicants believe this rejection is in error and respectfully request its withdrawal.

### **Rejections under 35 U.S.C. §102.**

Claims 1, 2, 6, 13, 27, 28 and 38 stand rejected under 35 USC §102(b) as being anticipated by either Albertson et al. (Biochim. Biophys. Acta. 1997, Vol. 1354(1):35-39) or McPherson et al. (Biochem. Soc. Trans., 1988, Vol 16(5):723-724). Applicants respectfully traverse.

Claims 1, 2, 4, 13, 27 and 38 stand rejected under 35 USC §102(b) as being anticipated by either Murooka et al. (J. Biol. Chem. 1989, Vol. 264(29):17524-31) or McPherson et al. (Biochem. Soc. Trans., 1988, Vol 16(5):723-724). Applicants respectfully traverse.

Claims 1-3, 5, 11-14, 27 and 33-39 are rejected under 35 USC §102(e) as being anticipated by Deweer et al (US Patent No. 6,074,854)

The claims have been amended to recite a truncated *Bacillus pullulanase*. Neither Albertson nor McPherson, or Murooka nor McPherson, or Deweer teach a truncated *Bacillus pullulanase*. Thus, the rejection has been rendered moot by the instant amendments. Applicants respectfully request the withdrawal of the rejection.

### **Rejections under 35 U.S.C. §103.**

Claims 1-15 and 27-40 stand rejected under 35 USC §103(a) as being unpatentable over Deweer et al. (US Patent No. 6,074,854), Murooka et al. (J. Biol. Chem. 1989, Vol. 264(29):17524-31) or McPherson et al. (Biochem. Soc. Trans., 1988, Vol 16(5):723-724) and Albertson et al. (Biochim. Biophys. Acta. 1997, Vol. 1354(1):35-39). Applicants respectfully traverse the rejection.

Taken together the references fail to teach or render obvious the present invention which has as a critical feature a truncated *Bacillus pullulanase*. Therefore, Applicants believe the rejection is in error and respectfully request its withdrawal.

Withdrawal of the rejection is respectfully requested.


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**CONCLUSION**

In light of the amendments presented herein as well as the above remarks, the Applicants believe the pending claims are in condition for allowance and issuance of a formal Notice of Allowance at an early date is respectfully requested. If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (650) 846-7516.

Respectfully submitted,

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Victoria L. Boyd  
Registration No. 43,510

Genencor International, Inc.  
925 Page Mill Road  
Palo Alto, CA 94304  
Tel: 650-846-7615  
Fax: 650-845-6504

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**Appendix**  
**Version With Markings To Show Changes Made**

*In the Claims:*

1. (Amended) A [modified] truncated *Bacillus* pullulanase which is capable of catalyzing the hydrolysis of an alpha-1,6-glucosidic bond.
3. (Amended) The [modified] pullulanase of Claim [2] 1 wherein the [gram positive microorganism includes] *Bacillus* is selected from the group consisting of *B. subtilis*, *B. deramificans*, *B. stearothermophilus*, *B. naganoensis*, *B. flavocaldarius*, *B. acidopullulyticus*, *Bacillus* sp APC-9603, *B. sectorramus*, *B. cereus*, and *B. fermus*.
5. (Amended) The [modified] pullulanase of Claim 3 wherein the [*B. deramificans*] *B. deramificans* pullulanase has the designation T89.117D in the LMG culture collection.
6. (Amended) The [modified] pullulanase of Claim 1 wherein the modification is a deletion of amino acids from the amino terminus of about 100 amino acids.
7. (Amended) The [modified] pullulanase of Claim 1 wherein the modification is a deletion of amino acids from the amino terminus of about 200 amino acids.
8. (Amended) The [modified] pullulanase of Claim 1 wherein the modification is a deletion of amino acids from the amino terminus of about 300 amino acids.
9. (Amended) The [modified] pullulanase of Claim 6 wherein the deletion is 98 amino acids from the amino terminus of [*B. deramificans*] *B. deramificans* pullulanase.
10. (Amended) The [modified] pullulanase of Claim 6 wherein the deletion is 102 amino acids from the amino terminus of [*B. deramificans*] *B. deramificans* pullulanase.
11. (Amended) The [modified] pullulanase of Claim 1 wherein the modification is an addition of at least one amino acid to the amino terminus of the mature pullulanase amino acid sequence.

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12. (Amended) The [modified] pullulanase of Claim 11 wherein the pullulanase is obtainable from [*Bacillus deramificans*] *Bacillus deramificans* and the additional amino acid at the amino terminus is an Alanine.

13. (Amended) [Modified] A truncated *Bacillus* pullulanase produced by the method comprising the steps of obtaining a recombinant host cell comprising nucleic acid encoding mature pullulanase, culturing said host cell under conditions suitable for the production of modified pullulanase and optionally recovering the modified pullulanase.

14. (Amended) The [modified] pullulanase of Claim 13 wherein the nucleic acid encoding mature pullulanase has at least 70% identity to the polynucleotide sequence as shown in SEQ ID NO:1.

15. (Amended) The [modified] pullulanase of Claim 13 wherein the host cell is [*B. licheniformis*] *B. licheniformis* which comprises a first gene encoding Carlsberg protease and a second gene encoding endo Glu C protease, the first and/or second gene which codes for the protease(s) having been altered such that the protease(s) is/are inactivated [activity is essentially eliminated].

27. (Amended) An enzymatic composition comprising a [modified] truncated *Bacillus* pullulanase.

28. (Amended) The enzymatic composition of Claim 27 wherein the [modified] pullulanase has a deletion of amino acids from the amino terminus of up to about 100 amino acids.

29. (Amended) The enzymatic composition of Claim 27 wherein the [modified] pullulanase has a deletion of amino acids from the amino terminus of up to about 200 amino acids.

30. (Amended) The enzymatic composition of Claim 27 wherein the [modified] pullulanase has a deletion of amino acids from the amino terminus of up to about 300 amino acids.

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31. (Amended) The composition of Claim 27 wherein the [modified] pullulanase has the amino acid sequence as shown in SEQ ID NO:2 beginning at amino acid residue 99, a glutamic acid.

32. (Amended) The composition of Claim 27 wherein the [modified] pullulanase has the amino acid sequence as shown in SEQ ID NO:2 beginning at amino acid residue 103, a glutamic acid.

33. (Amended) The composition of Claim 27 further comprising an enzyme selected from the group consisting of glucoamylase, alpha-amylase, beta-amylase, alpha-glucosidase, isoamylase, cyclomaltodextrin, glucotransferase, beta-glucanase, glucose isomerase, saccharifying enzymes, and[/or] enzymes which cleave glucosidic bonds.

34. The composition of Claim 27 further comprising a glucoamylase.

35. (Amended) The composition of Claim 34 wherein the glucoamylase is obtainable from an [Aspergillus] *Aspergillus* strain.

36. (Amended) The composition of Claim 35 wherein the *Aspergillus* strain includes [Aspergillus niger, Aspergillus awamori and Aspergillus foetidus] Aspergillus niger, Aspergillus awamori and Aspergillus foetidus.

37. The composition of Claim 27 wherein said composition is in a solid form.

38. The composition of Claim 27 wherein said composition is in a liquid form.

39. (Amended) The composition of Claim 27 comprising at least 60% [modified] truncated Bacillus pullulanase.

40. (Amended) The composition of Claim 27 comprising at least 80% [modified] truncated Bacillus pullulanase.